

## Executive Summary

### Background

This document defines the user interface style to be delivered by software developed for the Common Operating Environment (COE). The style specifications address the appearance and behavior of individual interface components as well as provide rules for application and window design in software with a graphical user interface (GUI) or a browser-based interface. A common user interface style is essential to the overall usability of COE-based systems so that users can interact effectively with a variety of complex, multi-windowed applications within a single system.

The COE provides a framework for developing and fielding Department of Defense (DoD) systems that meet the needs of the warfighter in a global information environment. DoD relies on the COE to provide the degree of system integration and interoperability needed to meet warfighter requirements. The COE addresses systems in the command, control, communications, computers, and intelligence (C4I) and combat support domains within DoD. The Global Command and Control System and the Global Combat Support System are examples of C4I and combat support systems, respectively, that are based on the COE and support the joint warfighter.

### Scope

COE specifications for GUI-based applications conform to the style defined by version 1.2 or later of Motif and the Microsoft (MS) guidelines for Windows NT and 2000 workstations. In addition, these specifications reference military standards relevant to user interface design of COE-based systems and incorporate best commercial practices as published in the technical literature. An integrated set of design specifications is provided whenever possible, with separate direction indicated where the two GUI style standards differ. The specifications deviate from these standards only when needed to accommodate operational requirements or constraints, provided that the deviations are consistent with established user interface practice. COE specifications for browser-based design are based on features available in version 3.2 of the Hypertext Markup Language and incorporate guidance on Web design published in the commercial literature and available on the Internet.

COE specifications define the user interface style where the primary mode of interaction is through a GUI or a Web browser. The specifications do not address the design of software providing a character-based interface or offer direction regarding possible migration of this software to a GUI-based interface. The specifications focus on the style attributes that software must possess in order to be accepted into a repository of COE-compliant segments and do not define or mandate a methodology or set of tools for user interface development. The specifications serve as the domain-level style guide for the C4I and combat support domains, per DoD Joint Technical Architecture policy on user interface standardization, and provide the COE technical guidance, per DoD Directive 4630.5, on user interface design of compliant software. The specifications also address

federal accessibility standards and the applicability of the standards to COE-compliant software.

## **Style Requirements**

Because visual and functional consistency within and among applications is a key element of system usability, the COE defines the following style requirements for the user interface in all compliant software:

- An application with a Motif GUI shall have a COE-compliant Motif style.
- An application with an MS Windows GUI shall have a COE-compliant MS Windows style.
- A Java-based application shall have a COE-compliant style that matches the GUI of the host platform.
- A Web-based application with a browser interface shall have a COE-compliant browser style.

Style compliance is required in the development of all new software and the migration of existing software submitted for inclusion in the segment repository. DoD organizations are expected to comply with all style specifications, with deviations occurring only when called for by operational requirements. The Defense Information Systems Agency (DISA) specifies the style requirements to be satisfied at each compliance level defined by the COE and makes tools available for assessing style compliance. Developers are expected to address COE style requirements as part of their software development process but do not have to provide documentation to DISA that they have satisfied these requirements when being evaluated for COE compliance.

## **Document Overview**

This document describes the user interface components and design rules for Motif and MS Windows applications, provides direction on page design and information presentation in Web applications, and explains how applications are created and integrated with the desktop in COE-based systems. Section 1 provides background on the COE, defines the purpose and scope of the specifications, specifies COE style requirements, and lists source documents on which the specifications are based. Sections 2 and 3 describe the input devices available to users and the manner in which they use these devices to interact with an application. Sections 4 through 7 address the appearance and behavior of windows, menus, and controls in an application.

Section 8 covers visual design of primary and secondary windows, with sections 9 and 10 providing specific formats for common secondary windows and map windows. Section 11 focuses on the availability of user support resources, while section 12 addresses the presentation of text and graphic information. Sections 13 and 14 describe page design, the presentation of text, images, and multimedia, and interactive capabilities in browser-based applications.

Section 15 describes approaches to application design and integration with the desktop, then section 16 describes object-oriented design and provides direction for applications implementing this design approach. Section 17 provides guidance related to user interface internationalization; this section is included for use by DoD organizations with a requirement to provide internationalized software and is not considered in determining COE style compliance.

Appendix A identifies the functions assigned to keys in Motif and MS Windows, and appendix B maps these keys to the keyboards for several COE hardware platforms. Appendix C defines standard vocabulary, mnemonics, and shortcut keys for common actions; appendix D provides graphics for some of these actions. Appendix E contains developer notes describing color sets, fonts, and application icon design in Motif and MS Windows; this appendix also provides general recommendations for implementing MIL-STD 2525 symbology. Appendix F lists acronyms and abbreviations used in the document. Appendix G maps the terminology in this document to that in Motif and MS Windows documentation, while Appendix H provides a glossary of style terminology. Appendix I maps the style specifications to COE compliance levels, and Appendix J describes federal standards for information accessibility by individuals with disabilities.

## **Summary of Changes**

This document is an update to version 4.0 of the User Interface Specifications for the Defense Information Infrastructure (DII). During the period following the version 4.0 release, the concept of the DII was superseded by that of the Global Information Grid, and what was previously known as the DII COE is now referred to as the Common Operating Environment. As a result, references to the term “DII” have been removed from both the title and content of the current release. In addition, the format of this release has been revised to be more similar to that used in the DII COE Integration and Runtime Specification.

The style specifications have been updated to conform to Microsoft style guidelines for the Windows 2000 platform and to incorporate user interface design guidance published in the technical literature since the previous release of the specifications. The document also addresses COE compliance with federal accessibility standards and Microsoft certification requirements and adds specifications related to window size and placement, design of assistant windows, and user functions in perspective map displays. Parts of Sections 4 through 8 were rewritten to accommodate the new content, with some topics moved to a different section of the document. In addition, when style specifications include design alternatives, the alternatives are identified in bulleted options.

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